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Duke Energy Carolinas, LLC's 2021 Avoided Cost
Proceeding Pursuant to S.C. Code Ann. Section 58-
41-20(A)

JULY 1, 2021

Introduction and Qualifications

Q. Please state your name, your position and your business address.

A. My name is Matthew Stanley. I am employed by Pelzer Hydro Company, LLC (“Pelzer”) and Aquenergy Systems, LLC (“Aquenergy”), as Vice President and General Manager. I am also the designated environmental steward for both Pelzer and Aquenergy. The hydroelectric facilities owned and operated by Pelzer and Aquenergy are located in South Carolina. However, my business address is at the companies’ offices at 670 N. Commercial Street Suite 204, Manchester, NH 03101. I can be reached by email at mstanley@centralriverspower.com or telephone at (603) 554-2656.

Q. Have you previously provided testimony to the South Carolina Public Service Commission?

A. No, I have not. However, I have testified before local government bodies in proceedings regarding small hydro operations.

Q. Briefly describe your professional background and your responsibilities, including at Pelzer and Aquenergy.

A. I earned a B.S. degree in physics from Worcester Polytechnic Institute (WPI) in 2002. My entire professional career has been in power generation. Since at least 2011, my work has been focused on the management and operation of hydroelectric dams and plants. The hydro facilities I have been responsible for span various regions in the United States, including New England, New York, California, and North Carolina. I have been with Pelzer and Aquenergy since January 2020, when I joined their parent company Central

1 Rivers Power, LLC. Central Rivers Power owns and operates 45 hydroelectric power plants
2 with a combined installed capacity of 340 MW across the United States.

3 **Q. On whose behalf are you providing testimony today?**

4 **A.** I provide this testimony on behalf of Pelzer and Aquenergy. As Vice President and General
5 Manager for the companies, I am authorized and competent to give this testimony on behalf
6 of both Pelzer and Aquenergy.

7 **Q. What is the purpose of your testimony in this Proceeding?**

8 **A.** The purpose of my testimony is to address the issues raised in Dockets 2021-89-E and
9 2021-90-E under South Carolina Energy Freedom Act, codified at S.C. Code Ann. § 58-
10 41-10 *et seq.* (the “Act”) as they relate to South Carolina owners and operators of small,
11 non-utility, hydroelectric generation facilities like Pelzer and Aquenergy. Specifically, at
12 this time I will provide general comments regarding the attributes of hydropower and
13 whether avoided cost rates as currently proposed by Duke Energy Carolinas, LLC (“DEC”) and/or
14 Duke Energy Progress, LLC (“DEP”) account for the differences of hydro facilities
15 based on location and resource type. Overall, the current proposed avoided costs rates of
16 DEC and DEP are not appropriate for small hydro qualifying facilities (“QFs”) like Pelzer
17 and Aquenergy. Rather, the Commission should only approve rates and terms for hydro
18 facilities that fully account for their unique attributes and capacity. That way, prudently
19 operated small hydro facilities may hope to operate without enduring substantial and
20 unavoidable losses.

21 **Q. Please describe the small hydro industry in South Carolina?**

1 **A.** In South Carolina, there are only 30 total 1MW or greater conventional hydro plants. Of
2 those, ten are owned by independent power producers (“IPPs”) like Pelzer and Aquenergy.
3 The remaining plants are owned by large electric utilities.

4 The small hydro resource overall has remained a steady source of reliable power serving
5 the grid in South Carolina for many decades. Many of these small hydro facilities were
6 initially developed to provide mechanical energy to the textile industries and provided the
7 foundation for growth and prosperity in South Carolina. Later, these hydroelectric facilities
8 were converted to electrical energy to supply the grid and local communities with clean
9 renewable power. Small hydropower is an invaluable capacity resource that serves a
10 critical role in firming and supporting renewables in the clean energy transition.

11 **Q.** **Please comment on the proper determination of the avoided cost rate.**

12 The rate making process under PURPA and the Act, as I understand it, has at least a couple
13 of primary considerations. The first is the determination of the utility’s avoided costs,
14 which may include related energy, capacity, and ancillary system benefits provided by the
15 operation of small power producers. Also, avoided cost methodologies may account for
16 differences in costs avoided based on the geographic location and resource type of a small
17 power producer QF.

18 **Q.** **Please describe the Pelzer and Aquenergy hydro facilities.**

19 Pelzer owns and operates two facilities—one in Pelzer, SC and the other in Williamston,
20 SC. Aquenergy also has two facilities, which are located in Piedmont, SC and Ware
21 Shoals, SC. All four hydro facilities are located along the Saluda River between Greenville

1 and Greenwood, South Carolina. All four facilities are QFs under PURPA and small power
2 producers under the Act.

3 **Q. Are the Pelzer and Aquenergy hydro facilities currently able to operate at a break-**
4 **even point or profitably?**

5 Absent unusual weather or maintenance cycles, no. Current avoided cost rates, which are
6 materially similar to those being proposed in the current proceedings, make break-even
7 operation an impossibility. The currently proposed rates by DEC, however, would be a
8 continuation of the same harmful and inadequate rates demanded by DEC since at least
9 February 2021.

10 **Q. Were small hydro plants like Pelzer and Aquenergy previously able to operate at least**
11 **on a break-even basis? How?**

12 **A.** Yes. Previously, DEC used to provide an avoided cost rate which historically allowed for
13 small hydro facilities to at least break-even if conservatively managed. However,
14 constantly lower avoided cost rates without additional payments has been financially
15 devastating to small hydro QFs like those owned by Pelzer and Aquenergy. Reviewing the
16 rates being proposed here by DEC in this proceeding, it appears DEC intends for this trend
17 and treatment of small hydro QFs to continue. This is simply an unsustainable situation for
18 small hydro.

19 **Q. Please comment on the calculation of the avoided cost when it comes to hydro**
20 **facilities.**

21 **A.** The calculation of the utilities avoided cost includes more than just the cost of the
22 production related capacity and energy cost. For instance, the utility benefits from such

1 items as reduced step-up, transmission, and substation losses by having small hydro
2 generation facilities delivering power directly to the distribution system for nearby
3 communities . It is important that the full range of avoided costs like these and other related
4 system benefits be properly reflected in the calculation of the avoided cost.

5 **Q. What are some of the other system benefits that should be considered?**

6 **A.** In contrast with other generation resources which are intermittent, hydropower is seasonal
7 and highly predictable. Small hydroelectric assets provide extremely reliable services of
8 any resource type and do so in a non-emitting manner—in other words, without carbon.

9 More so than other renewable energy options, hydropower provides predictable real-time,
10 day-ahead and oftentimes week-ahead energy and resource adequacy.

11 Small hydro also provides the DEC system resiliency as it does not have the risk of fuel
12 supply disruptions common to fossil fuel generators as frequently seen in the Northeast and
13 most recently in Texas. Capacity calculations do not readily capture the flexibility and fuel
14 security of small hydro. The PAF attributed to all QFs does not completely capture the
15 unique value of the small hydro assets. Rather, it improperly treats all assets as being the
16 same, whether they are seasonal (like hydro) or intermittent and less predictable.

17 Hydro assets are also a resilient strategic asset in terms of cybersecurity risk. Hydro plants
18 require limited electronics and can even be run without electronics when needed. They can
19 also provide renewable black-start capabilities to improve grid resilience. This
20 distinguishes hydro as a resource, especially from other renewables.

21 **Q. Are there environmental benefits of hydro facilities that should be included in the**
22 **calculation of avoided cost?**

1 **A.** Yes. In addition to those already mentioned, hydro operation helps avoid fossil fuel
2 generation which has not only carbon and other combustion byproducts, but in many cases
3 other externalities related to the rail and pipeline transportation of the fuels, and the
4 environmental damage and risks related to waste disposal. Hydro plants typically also
5 provide recreational access points and other flood control benefits for the citizens of South
6 Carolina. That is true of Pelzer's and Aquenergy's facilities. These benefits to the public
7 are uncompensated, and there are real costs to the facilities to maintain these attributes.
8 The environmental risks associated with the operations are subject to stringent federal
9 oversight. In the rare cases where hydroelectric assets are retired, the disposition of the
10 facility is further governed by strict oversight. The Commission should continue to
11 recognize all these environmental benefits and avoided costs and risks associated with
12 clean, renewable hydro power.

13 **Q. How does the operation of hydro facilities impact and benefit communities?**

14 **A.** There are significant local economic and environmental benefits associated with small
15 hydro facilities. All independently owned small hydro facilities employ local workers in
16 their communities. Small hydro plants have long histories employing local community
17 members for over 100 years. In some cases, generations of families have learned the small
18 hydro trade and continue to be employed at the hydro facilities. Most of the major
19 maintenance and capital expenditure programs are also completed using local fabricators,
20 suppliers, and electrical companies.

1 As discussed above, hydro plants typically also provide recreational access points and
2 other flood control benefits. These benefits to the public are uncompensated despite their
3 costs.

4 As initially indicated above, maintenance of these public benefits are subject to significant
5 costs associated with oversight by multiple agencies, including the Federal Energy
6 Regulatory Commission and several State agencies, who review and approve our
7 compliance with stringent dam safety and environmental standards. The asset life and
8 benefit to the state and local communities of hydroelectric facilities can be over 100 years.

9 **Q. Do you have any recommendations for the Commission?**

10 **A.** Ultimately, Pelzer and Aquenergy are asking that the full and unique value of hydro
11 resources be properly considered in determining an appropriate avoided cost for hydro QFs.
12 These include items such as benefits and avoided costs related to the environment, system
13 reliability and reduced losses, and fuel related cost savings. A longstanding, reliable,
14 renewable energy resource like hydropower should be able to operate without sustaining
15 substantial losses. An interim option for achieving those objectives might be to apply a
16 higher PAF multiplier for hydro, and then more fully revisit the calculation of avoided cost
17 in a subsequent proceeding. Even if somewhat imperfect, that option would at least
18 preserve status quo and prevent hydro facilities from closing. That result—the loss of small
19 hydropower—is also inconsistent with the Act’s mandate to take into consideration the
20 differences of generation resources when approving appropriate avoided cost
21 methodologies.

1 **Q. Are you saying that the hydro operators should be guaranteed the recovery of their**
2 **annual capacity costs?**

3 **A.** No, but prudently operated hydro projects should not be expected to operate at substantial
4 loss and should have the opportunity to be fully compensated for the capacity and other
5 benefits they provide. In many other states where Central Rivers Power operates small
6 hydroelectric facilities, regulators acknowledge the benefits of small hydro and seek to
7 support their operations through targeted renewable energy credits which are in the range
8 of \$0.015-\$0.04/KWh. The alternative is that small hydro becomes permanently
9 unsustainable and will be lost in state and local communities and for future generations.
10 Importantly, the fact that small, independent hydro facilities are operating at a loss strongly
11 suggests that the utilities themselves do not operate their own small hydro facilities within
12 current avoided costs. Accordingly, a closer look at those specific utility operations would
13 likely show that the proposed avoided cost rates result in hydro QFs being treated less
14 favorably than utility owned hydro.

15 **Q. Do you recommend different rates for specific renewable technologies?**

16 **A.** Potentially, yes. Importantly, the Act recognizes that the Commission can allow for
17 differences among generation types in approving avoided cost methodologies. While my
18 testimony has focused on hydro operations, generation characteristics for other
19 technologies vary significantly from hydro generation. Thus, the development of rates
20 which allow for the full recovery of the capacity costs may differ for other technologies. In
21 fact, DEC has historically acknowledged as much by applying a higher PAF for hydro rates
22 in North Carolina.

1 **Q. In addition to rates, are there any other matters before the Commission in this**
2 **proceeding that could assist hydro operators?**

3 **A.** Yes. PPA duration with consistent capacity payments over a long term are not subject to
4 the unpredictability of when DEC is in a capacity surplus or deficit. Hydropower is unique
5 in the renewable energy industry in that the facilities are local, capital intensive assets that
6 require ongoing civil (i.e., dam), mechanical, and electrical improvements over a very
7 long-term planning horizon of many decades in our communities. It is difficult to finance
8 turbine overhauls and critical dam safety improvements when the resource adequacy
9 compensation does not provide reasonable incentives on a long-term basis. Unexpected
10 repairs are not planned, resulting in material economic barriers when capacity pricing does
11 not incentivize near term repairs and or replacements, which potentially creates a less
12 reliable grid asset. PPA durations with capacity payments over a long period consistent
13 with the Act's requirements are necessary.

14 **Q. Do you anticipate the situation improving for small hydro producers without**
15 **assistance from the Commission?**

16 **A.** No. Under existing avoided cost rates and methodology, small independent hydro assets
17 will not survive long-term. Moreover, the technical demands of utilities have only
18 increased, causing the cost of hydro operations to increase without corresponding cost
19 recovery. For example, the rapid build out of solar facilities in DEC's territory has resulted
20 in small hydro owners trying to keep up with ever-changing pricing schedules. Operating
21 hydroelectric facilities to keep up with more complex pricing schemes has resulted in more
22 costly staffing and automation requirements. The unpredictable daily pricing schedule

1 from DEC has also affected future revenue uncertainty, adversely impacting the present
2 value of the hydroelectric facilities and the ability to plan for future operations.

3 **Q. Will you update your testimony based on information that becomes available?**

4 **A.** Yes. Pelzer and Aquenergy reserve the right to revise and add to their testimony via
5 supplemental or amended testimony, especially if new information becomes available or
6 known.

7 **Q. Does this conclude your testimony?**

8 **A.** Yes, with a brief closing comment. The bottom-line concern here is the viability of small
9 hydro in this state. Currently Pelzer's and Aquenergy's South Carolina facilities are
10 operating at an approximately 50% loss. This cannot be sustained. For all of the real costs
11 of operating a hydro facility and public benefits gained as described earlier, those should
12 be fully recognized by DEC. Failure to acknowledge these costs and benefits will result in
13 operational, renewable assets being scrapped and lost in the state and local communities.
14 That is a needless loss and inconsistent with this state's public policy and the Act.
15 Thank you for the opportunity to provide my sworn testimony in this important matter.